

REMARKS

This Amendment is submitted in response to the non-final Office Action mailed on June 2, 2009. No fee is due in connection with this Amendment. The Director is authorized to charge any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112857-456 on the account statement.

Claims 42-82 are pending in this application. Claims 1-41 were previously canceled without prejudice or disclaimer, and Claims 64-80 and 82 were previously withdrawn from consideration. In the Office Action, the drawings are objected to. Claims 42-63 and 81 are objected to because of informalities. Furthermore, Claims 42, 46, 51-55, 57-58, 62-63 and 81 are rejected under 35 U.S.C. §112. Claims 42-45, 47-52, 56 and 62 are rejected under 35 U.S.C. §102. Claims 46, 54-55, 57-61, 63 and 81 are rejected under 35 U.S.C. §103. In response, the drawings have been amended. Claims 42-63 and 81 have also been amended. The amendments do not add new matter. At least in view of the amendments and/or for the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn.

In the Office Action, the drawings are objected to for minor informalities. Specifically, with respect to Fig. 1, the Patent Office asserts that the reference "10" is used twice, and the lower denoted "10" should be "20" instead. See, Office Action, page 3, lines 4-7. In response, Applicants have replaced the lower denoted "10" in Fig. 1 with the reference "20" to represent the control substrate.

With respect to Fig. 7B, the Patent Office asserts that the reference "73" is used twice, and the left-hand side reference "73" should be "74" instead. See, Office Action, page 4, lines 1-4. In response, Applicants have replaced the left-hand side "73" in Fig. 7B with the reference "74" to represent the sealing member. Thus Applicants respectfully submit that the objections to Figs. 1 and 7B be withdrawn.

In the Office Action, Claims 42-63 and 81 are objected to because each claim recites a "fuel cell" rather than a "fuel cell system" as suggested by the Patent Office. See, Office Action, page 4, lines 20-22; page 5, lines 1-3. In response, Applicants have amended Claims 42-63 and 81 to replace the phrase "fuel cell" with the term "fuel cell system." These amendments are supported in the Specification at, for example, page 5, paragraphs 76-79; pages 5-6, paragraph 80; page 6, paragraphs 81-82; Figs. 1-3.

Accordingly, Applicants respectfully request that the objection to Claims 42-63 and 81 based on informalities be withdrawn.

In the Office Action, Claims 51-53 and 55 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. The Patent Office asserts that the limitation of “the sectional area” recited in Claims 51-53 lacks sufficient antecedent basis. See, Office Action, page 5, lines 10-11. In response, Applicants have amended Claims 51-53 to replace the phrase “the sectional area” with the phrase “a sectional area.” The amendments do not add new matter. The amendments are supported in the Specification at, for example, page 2, paragraphs 21-23; page 6, paragraph 85, lines 16-25; Fig. 5A.

With respect to Claim 55, the Patent Office further asserts that the limitation of “said water discharge means” lacks sufficient antecedent basis. See, Office Action, page 5, lines 1-3. Specifically, the Patent Office asserts that Claim 55 should be dependent on Claim 54, rather than Claim 52. See, Office Action, page 5, lines 15-20. In response, Applicants have amended Claim 55 to recite the fuel cell system “as set forth in claim 54.” The amendment does not add new matter. The amendment is supported in the Specification at, for example, page 2, paragraphs 24-25; page 9, paragraph 104, lines 1-21; Figs. 1, 4 and 5A.

Accordingly, Applicants respectfully request that the rejection of Claims 51-53 and 55 under 35 U.S.C. §112, second paragraph, be withdrawn.

In the Office Action, the Patent Office asserts that Claims 42, 46, 54-55, 57-58, 62-63 and 81, although reciting the language “means” and “means for,” fail to properly invoke 35 U.S.C. §112, sixth paragraph, due to ambiguities. Specifically, the Patent Office asserts that the use of both the phrases “means for” and “means” without the “for” term make it unclear whether Applicants intend to invoke 35 U.S.C. §112, sixth paragraph. See, Office Action, page 6, lines 2-8. In response, Applicants have amended Claims 42 and 81 to recite “a gas flow means for sucking said oxidant gas into a first intake port” and “a cooling means for sucking said oxidant gas into a second intake port.” The amendments do not add new matter. The amendments are supported in the Specification at, for example, page 3, paragraphs 34, 37-38 and 40; page 5, paragraph 78; page 8, paragraphs 92-93; Figs. 2B and 8. As such, all the claims containing “means” language now recite “means for.” Therefore, Applicants respectfully submit that the claims properly invoke 35 U.S.C. §112, sixth paragraph.

With respect to Claims 54-55, the Patent Office asserts that the claims impart structure to the “water discharge means for discharging water” limitation because the claims recite that: (1) the water discharge means discharges water by generating a difference in pressure; and (2) the discharge means “opens part of the discharge passage to the atmosphere.” See, Office Action, page 6, lines 9-17. In response, Applicants respectfully submit that “generating a difference in pressure” and “open[ing] part of the discharge passage to the atmosphere” do not impart structure but merely recite additional functions of the water discharge means. The Patent Office further asserts that Applicants must amend the claims to recite “means for” and set forth the structure in the specification that performs the recited claim element. See, Office Action, page 7, lines 1-9. In response, Applicants note that the claims recite a “means for” discharging water and the Specification recites that a hydrogen purge valve, for example, can be the water discharge means. See, Specification, page 9, paragraph 104. Therefore, Applicants respectfully submit that Claims 54-55 properly invoke 35 U.S.C. §112, sixth paragraph.

With respect to Claims 57-59, the Patent Office asserts that the claims impart structure to the “detection means” limitation because the claims recite that: (1) the detection means detects a temperature and/or humidity; and (2) the detection means is arranged at specific locations to detect temperature and humidity conditions of the system. See, Office Action, page 6, lines 17-20. In response, Applicants respectfully submit that several structures are capable of detecting temperature and humidity conditions, and the recitation of detecting a temperature and/or humidity condition does not impart structure but merely recites a specific function(s) of the detection means. Furthermore, placement of the detection means at specific locations does not impart a structure to the detection means but instead merely recites the location of the detection means. The Patent Office further asserts that Applicants must amend the claims to recite “means for” and set forth the structure in the specification that performs the recited claim element. See, Office Action, page 7, lines 1-9. In response, Applicants note that the claims recite a “means for” detecting an environmental condition and the Specification recites temperature and humidity sensors as detection means for detecting environmental conditions of the fuel cell system. See, Specification, page 7, paragraph 91; page 8, paragraphs 94-95. Thus, Applicants respectfully submit that Claims 57-59 properly invoke 35 U.S.C. §112, sixth paragraph.

Accordingly, Applicants respectfully submit that Claims 42, 46, 54-55, 57-58, 62-63 and 81 properly invoke 35 U.S.C. §112, sixth paragraph.

In the Office Action, Claims 42-45, 47-52, 56 and 62 are rejected under 35 U.S.C. §102(b) as being anticipated by International Patent Publication No. WO 00/14819 to Chizawa et al. ("*Chizawa*"). In response, Applicants have amended independent Claims 42 and 81. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that *Chizawa* fails to disclose each and every element of the present claims.

Currently amended independent Claim 42 recites, in part, a fuel cell system comprising: a power generation unit provided with a conduit for an oxidant gas containing at least oxygen; a heat radiation unit connected to said power generation unit so as to radiate heat from said power generation unit; a gas flow means for sucking said oxidant gas into a first intake port disposed on said power generation unit; and a cooling means for sucking said oxidant gas into a second intake port disposed on said power generation unit adjacent to said first intake port, wherein said cooling means is driven independently of said gas flow means so as to cool said heat radiation unit. These amendments do not add new matter. The amendments are supported in the Specification at, for example, page 3, paragraphs 34, 37-38 and 40; page 5, paragraph 78; page 8, paragraphs 92-93; Figs. 2B and 8. In contrast, *Chizawa* fails to disclose or suggest every element of the present claims.

For example, *Chizawa* fails to disclose or suggest a cooling means for sucking said oxidant gas into a second intake port disposed on said power generation unit adjacent to said first intake port as recited, in part, by independent Claim 42. The Patent Office asserts that *Chizawa* discloses a gas-feeding means for the reactants and cooling fans as cooling means to cool the radiation fins. See, Office Action, page 8, lines 6-10. The Patent Office further asserts that the fans are necessarily driven independently from the gas flow means because the reactants are lined into the fuel cell and the fans are directed to the stack externally. See, Office Action, page 8, lines 10-13. However, nowhere does *Chizawa* disclose or suggest that its cooling fans suck oxidant gas into a second intake port disposed on the power generation unit adjacent to said first intake port. Instead, *Chizawa* merely teaches that its cooling means is located "at a gate portion of the reactive gases of the two lines in the separator." See, *Chizawa*, column 5, lines 5-10. *Chizawa* further shows that its cooling fans are located across the entire top of the fuel cell stack, rather than adjacent to a first intake port for the oxidant gas. See, *Chizawa*, column 12, lines 56-59; Fig. 9. Thus, *Chizawa* fails to disclose or suggest that its cooling means sucks said oxidant

gas into a second intake port disposed on said power generation unit adjacent to said first intake port as required, in part, by the present claims.

Accordingly, Applicants respectfully request that the rejection of Claims 42-45, 47-52, 56 and 62 under 35 U.S.C. §102(b) to *Chizawa* be withdrawn.

In the Office Action, Claims 46 and 54-55 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Chizawa* in view of U.S. Patent No. 6,277,508 B1 to Reiser et al. ("*Reiser*"). Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 46 and 54-55.

As discussed previously, *Chizawa* fails to disclose or suggest a cooling means for sucking said oxidant gas into a second intake port disposed on said power generation unit adjacent to said first intake port as required, in part, by independent Claim 42 from which Claims 46 and 54-55 depend. The Patent Office relies on *Reiser* merely for the disclosure of a water suction means that suctions and removes water from the conduit and discharging water from an in-plane conduit via a pressure difference between the supply and discharge sides. See, Office Action, page 15, lines 6-22; page 16, lines 1-11; page 17, lines 15-20. Nowhere does *Reiser* disclose or suggest a cooling means for sucking oxidant gas into a second intake port adjacent to the first intake port, nor does the Patent Office cite support for such claimed element. As such, even if combinable, *Reiser* fails to remedy the deficiencies of *Chizawa* with respect to Claims 46 and 54-55.

Accordingly, Applicants respectfully request that the rejection of Claims 46 and 54-55 under 35 U.S.C. §103(a) to *Chizawa* and *Reiser* be withdrawn.

In the Office Action, Claim 53 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Chizawa* in view of U.S. Patent Publication No. 2001/0019793 A1 to Tsuyoshi ("*Tsuyoshi*"). Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claim 53.

As discussed previously, *Chizawa* fails to disclose or suggest a cooling means for sucking said oxidant gas into a second intake port disposed on said power generation unit adjacent to said first intake port as required, in part, by independent Claim 42 from which Claim 53 depends. The Patent Office relies on *Tsuyoshi* merely for the disclosure of a connecting portion to the supply passage which is smaller than a connecting portion to the discharge passage. See, Office Action, page 18, lines 1-15. Nowhere does *Tsuyoshi* disclose or suggest a

cooling means for sucking oxidant gas into a second intake port adjacent to the first intake port, nor does the Patent Office cite support for such claimed element. As such, even if combinable, *Tsuyoshi* fails to remedy the deficiencies of *Chizawa* with respect to Claim 53.

Accordingly, Applicants respectfully request that the rejection of Claim 53 under 35 U.S.C. §103(a) to *Chizawa* and *Tsuyoshi* be withdrawn.

In the Office Action, Claims 57-61 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Chizawa* in view of U.S. Patent Publication No. 2002/0180448 A1 to Imamura et al. ("*Imamura*") and U.S. Patent Publication No. 2002/0168556 A1 to Leboe et al. ("*Leboe*"). Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 57-61.

As discussed previously, *Chizawa* fails to disclose or suggest a cooling means for sucking said oxidant gas into a second intake port disposed on said power generation unit adjacent to said first intake port as required, in part, by independent Claim 42 from which Claims 57-61 depend. The Patent Office relies on *Imamura* merely for the disclosure of a control system which reads environmental conditions such as humidity and temperature and adjusts the water content properly. See, Office Action, page 19, lines 7-22; page 20, lines 1-5. The Patent Office further relies on *Leboe* merely for the disclosure of controlling the amount of cooling to maintain the desired temperature range of a fuel cell. See, Office Action, page 20, lines 6-14. Nowhere do *Imamura* or *Leboe* disclose a cooling means for sucking oxidant gas into a second intake port adjacent to the first intake port, nor does the Patent Office cite support for such claimed element. As such, even if combinable, *Imamura* and *Leboe* fail to remedy the deficiencies of *Chizawa* with respect to Claims 57-61.

Accordingly, Applicants respectfully request that the rejection of Claims 57-61 under 35 U.S.C. §103(a) to *Chizawa*, *Imamura* and *Leboe* be withdrawn.

In the Office Action, Claims 63 and 81 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Chizawa* in view of U.S. Patent Publication No. 2002/0051898 to Moulthrop, Jr. et al. ("*Moulthrop*"). Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 63 and 81.

As discussed previously, *Chizawa* fails to disclose or suggest a cooling means for sucking said oxidant gas into a second intake port disposed on said power generation unit adjacent to said first intake port as required, in part, by independent Claim 42 from which Claim 63 depends, as

well as independent Claim 81. The Patent Office relies on *Moulthrop* merely for the disclosure of a pressure control means for regulating the pressure of the supply fuel and using the fuel cell to supply power to an electronic apparatus. See, Office Action, page 22, lines 18-22; page 23, lines 1-8; page 24, lines 3-11. Nowhere does *Moulthrop* disclose a cooling means for sucking oxidant gas into a second intake port adjacent to the first intake port, nor does the Patent Office cite support for such claimed element. As such, even if combinable, *Moulthrop* fails to remedy the deficiencies of *Chizawa* with respect to Claims 63 and 81.


Accordingly, Applicants respectfully request that the rejection of Claims 63 and 81 under 35 U.S.C. §103(a) to *Chizawa* and *Moulthrop* be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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Date: September 2, 2009